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ABSTRACT

These four papers are from a symposium that was facilitated by Neal Chalofsky at the 1995 conference of the Academy of Human Resource Development (HRD). "Using Critical Incidents in Teaching HRD: A Method for Fostering Critical Reflection and Dialogue" (Hallie Preskill) reports study findings that confirm the value of the activity in its ability to model effective evaluation practice, highlight the importance of sound instructional systems design, and understand one's own learning style. "Using a Real-Time Feedback System in Managerial Education" (David Antonioni) reports the finding of an exploratory study that an immediate feedback system (IFS) added value to the learning experience of 207 managers attending continuing education seminars. "Instructional Use of Compressed Video Distance Teaching: A Responsive Evaluation" (Larry M. Dooley) reports results of a study designed as a responsive evaluation of a network to deliver distance education classes. Faculty support, training, and administrative issues are identified that must be addressed in managing this type of instructional delivery. "Team-Teaching in Graduate Level HRD: Participant's Attitudes and Perceptions" (Tim Hatcher, Barbara Hinton, James Swartz) focuses on a study of a graduate HRD course that used a team-teaching approach. Based on qualitative and quantitative data, the paper reports findings that suggest team teaching supports andragogy, faculty collaboration, and socialization. (YLB)

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March 2-5, 1995
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[3] **UNIVERSITY INSTRUCTION IN HRD** Facilitator: Neal Chalofsky, George Washington U.

Using Critical Incidents in Teaching HRD: A Method for Fostering Reflection and Dialogue
Hallie Preskill, University of New Mexico

Using an Immediate Feedback System in Managerial Education
David Antonioni, University of Wisconsin - Madison

Instructional Use of Compressed Video Teaching: A Responsive Evaluation
Larry M. Dooley, Texas A & M University

Team-Teaching in Graduate Level HRD: Participant's Attitudes and Perceptions
Tim Hatcher, University of Arkansas
Barbara Hinton, University of Arkansas
James Swartz, University of Arkansas

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Using Critical Incidents in Teaching HRD: A Method for Fostering Critical Reflection and Dialogue

Hallie Preskill
University of New Mexico

This paper reports the results of a study that used the critical incident method to stimulate students' reflections on their classroom learning experiences, and to provide evaluative feedback to the instructor. The findings confirm the value of the activity in its ability to model effective evaluation practice, highlight the importance of sound instructional systems design, and understand one's own learning style.

In my role as an HRD faculty member, I have always felt that my teaching of instructional systems design and program evaluation was for students, like "viewing a play within a play." That is, as I teach about teaching others, my students silently critique and sometimes assimilate what I do. For this reason, I have become keenly aware of the need to model effective HRD practices in my classroom. In teaching about the importance of program, process, product and organizational evaluation in HRD, I stress the critical nature of ongoing, collaborative, and effective communication throughout the evaluation process.

In the past I have relied on mid-term evaluations I developed and the University's end of course evaluation as the primary evaluative feedback of the course. But after one fateful teaching experience, I knew I needed something else. I was teaching a class on program evaluation to a group of teachers who were nearing the end of their graduate program. Though I had heard from other instructors they were a "tough" group, I was fairly certain I could excite them about evaluation. For the first four weeks, all seemed to be going well. When I lectured, I noticed smiles and nodding heads, and apparent interest in the topic. When the students were engaged in group exercises and discussions, they seemed genuinely cooperative and productive. But after the fifth class, one of the students asked to talk with me after class. Expecting he wanted to talk about his final project, I smiled and said "Sure." However, when we met, he just about knocked the wind out of me by saying that he was speaking on behalf of the class, and that the class had decided it was a waste of their time. I won't go into the entire conversation, but suffice it to say, I was in a state of shock and don't exactly remember how I got home.

Over the next few days I received many phone calls and faxes from students assuring me that this one person didn't reflect the opinion of the entire group of teachers. These calls made me aware that some of their issues were about the program and not about the course. I decided to write a letter to the students asking them to come to the next class prepared with ideas for how to change the course. The following week we discussed the impetus for this surprising revelation, and as we talked, it became exceedingly clear that a few students had complaints with their principal's strong recommendation (heard by some as a mandate) that all the teachers get their Master's degree within two years. It wasn't the class that was the problem, it was just their having to be there! To motivate those who didn't want to be in the program, we did make some changes to the course as a result of this conversation. The outcome, as evidenced in the course evaluations was quite positive.

As I began thinking about how I could have seen the problem earlier, I remembered the critical incident technique Stephen Brookfield introduced us to at the University of St. Thomas. This method asks students to respond to a set of evaluative questions each week which the instructor then reads and summarizes. The summaries are returned to the students the following class period where they are discussed, and possible changes in the course are negotiated. In the last year I have used the critical incident technique with my students. In an effort to ascertain the students' views of its effectiveness and to clearly identify its benefits to myself and others, I implemented an exploratory research project. The questions that guided this study were: (1) In what ways do students benefit from participating in the critical incident technique? and, (2) What effect does the critical incident technique have on teaching practice?

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Literature Review

The adult learning literature is replete with theories, models, and instructional strategies that are intended to guide the teaching of adults. The importance of collaboration, praxis, and the facilitation of critical reflection has been strongly recommended when teaching adults. (Brookfield, 1986) At the same time, the role of experiential learning, which suggests that individuals learn the most when they are actively engaged with the learning material, has also been a theme in the learning style literature. Kolb (1984) viewed experiential learning as a four-cycle process that includes experience, observation and reflection, abstract reconceptualization, and active experimentation. His model emphasizes that while experience forms the foundation for learning, reflection is critical to the application of that learning.

The role of reflection has also attracted much attention and support in the educational literature. Much of this interest is attributable to the work of Donald Schon (1983, 1987) who challenged scholars and practitioners to ask, "What is the kind of knowing in which competent practitioners engage?" (1983, p. viii). Reflection is described as the "practice of analyzing one's own actions, decisions, or products by focusing on the processes involved" (Killion & Todnem, 1991), and is defined as:

> A means by which practitioners can develop a greater level of self-awareness about the nature and impact of their performance, an awareness that creates opportunities for professional growth and development. (Osterman & Kottkamp (1993, p. 19)

Saban, Killion & Green (1994) describe three types of reflection. The first, "reflection-in-action," occurs when we watch ourselves as we act out certain thoughts and actions. The authors liken this to an "out-of-body" experience. It happens most when we try to take ourselves outside to see what we are doing from a different perspective. An example would be the trainer who constantly assesses how well the program is going and makes adjustments as necessary. The second type of reflection is "reflection-on-action." This is the most common type and occurs when we replay a situation in our mind. This process allows us to review, critique, and relive the experience, and to form opinions and judgments from this activity. "Reflection-for-action" is the third type of reflection. Predicting how we will use what we have learned from the experience is the focus of this activity. Here we use our increased knowledge to plan for the application of our learning. The argument is made that when reflective practice is interwoven through experiential learning activities, higher levels of knowledge and professional competence will be attained.

There have been a number of suggestions recently for how one might facilitate the development of reflective practice in an organizational setting. Some writers have suggested using guided book reviews (Schmale, 1994), program evaluation methods and processes (Preskill, 1994), and task forces or study groups (McCarthy & Still, 1993) as the means by which a group of individuals may reflect in, on, or for practice. One strategy that is receiving increased attention is the use of critical incidents. This method asks that participants write brief descriptions of their experiences that are considered to be significant or memorable.(Brookfield, in press, Tripp, 1993, Woods, 1993) The usefulness of this approach has been most recently documented by Brookfield (in press) who maintains that using critical incidents: (a) alerts instructors to problems before they become problems, (b) encourages students to be reflective learners, (c) encourages diversity in teaching, (d) builds trust between the instructor and student, and (e) suggests possibilities for the instructor's development. The use of critical incidents may be a particularly appropriate method for instructors' wishing to model experiential learning and encourage reflective practice in an instructional setting.

Research Design and Methods

I chose to implement the critical incident approach in two graduate courses on program evaluation between February and December, 1994. Both courses were taught as core requirements in HRD programs in two different universities. One course met once a week for fifteen weeks, and the other met every Wednesday evening and three Saturdays for eight weeks. The 35 students in these

two courses worked in a variety of settings including schools, businesses, non-profit organizations, healthcare, and the military. For most of them, their primary responsibly was to educate and train adults in their district or organization. Those who were not currently in HRD positions, were attending graduate school to qualify for future employment in the profession.

At the beginning of each class period, students were provided with a survey-like form that asked five questions. These were: (1) At what point during the class tonight did you feel most engaged with what was happening?, (2) At what time tonight did you feel most distanced from what was happening?, (3) What action did someone take in class that you found most affirming or helpful?, (4) What action did you find most puzzling or confusing?, and (5) What surprised you the most in class tonight? These questions are very similar to those used by Brookfield (in press) in his work on teaching with critical incidents.

Students were told that they should write down things they think of in response to these questions during the class, and/or during the last ten minutes of class which was allocated for this activity. They could then submit their critical incidents anonymously or could identify themselves on the paper if they wished. I explained that I would summarize their reflections for the following week, where we would read the summaries and discuss any issues that arose. I emphasized that I would not judge their responses or make interpretations in these summaries. Rather, I would look for patterns, themes, and alternative viewpoints and represent everyone's thoughts as accurately as possible. Because I felt it was important that I too respond to how I experienced the class, I always included my reactions at the end of the summary.

At the beginning of class each week the students were asked to read the critical incident summaries (which were typically approximately one-and-a-half pages). After they finished reading them we discussed their reactions and I addressed questions or concerns they had about particular concepts or material covered the week before. The following is the summary from one of the class meetings.

TLT 508 Critical Incident Summary
10/27/94 (#11) N=8

Most Engaged

Six of the eight responding said they were most engaged during the small group discussions of your projects. One person wrote, "When we broke into our project discussion group. We got really involved and were very helpful to each other." Two people felt most engaged during the survey redesign work, and one person liked the information and role play on interviewing.

Most Distanced

Of the four responses to this question, three people felt distanced during the survey editing activity. One person said there was lots of confusion in her/his group, one person felt distanced when I told the groups they only had seven minutes left, and one person "felt that we didn't get very much done because our group was not "connecting." The fourth person who responded to this question said he/she felt most distanced during the break.

Most Affirming or Helpful

Five people thought that the time they spent in groups working on the evaluation plan projects was most helpful. One person specifically mentioned her group members as being helpful (Liz, Cynthia, Norma, Merriam). The sixth person responding was appreciative of my suggestion that this person's group move on from the section on which they were working because of the limited time.

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Most Puzzling or Confusing

Only one person wrote anything for this question. Their comment was related to the survey editing activity.

Surprised You the Most

Six people mentioned how enjoyable and helpful the group discussions were on the evaluation plan projects. Their comments included:

- How useful others' ideas are to my project.
- I actually enjoyed getting into groups to discuss the projects.
- Overall I felt very good about today's class. We had lots of class interactions.
- The diversity and quality of the proposed evaluation plans and the intended applications.
- How very helpful the project discussion group was.

One person thought focused questions for the groups would have helped guide the discussions.

H. Preskill's Reactions

I am very pleased that you found the small group discussions on your projects so helpful. We will try to include a bit more time before the end of the semester to do another check in with each other. It is interesting for me to read the comments on the survey work. Though your discussions were probably made more difficult by trying to reach consensus on how to improve the survey with only 45 minutes, I do think the activity demonstrated the complex nature of developing a useful survey that will result in quality data. I do appreciate the efforts you made to work together.

As I this class and think about changing parts of it for the next time I teach it, I continue to think about what we could leave out given the fact that most, if not all of you, will be taking either EdFnd 500 or 501. Any feedback you have about replication would be greatly appreciated. I hope by the 7th you will made good progress on your projects.

To evaluate the use of the critical incident technique, students in both courses were asked to complete one last set of questions. These questions included: (1) What have you learned about yourself as a learner in responding to these questions each week?, (2) What have you learned about course design and delivery from the class's involvement with writing critical incidents?, (3) In what ways has this activity contributed to your learning about evaluation?, (4) What do you think I have learned from reading your critical incidents each week?, (5) In what ways did writing critical incidents each week negatively affect the course?, (6) What surprised you the most about writing critical incidents each week?, and (7) Would you recommend I ask students in my other classes to write critical incidents each week? In summary, the data for this research resulted of 218 critical incident forms, 17 summaries, and 24 critical incident evaluations.

Data Analysis

The first analysis of the data analysis was conducted during each of the courses when the students' critical incidents were summarized after each class. The second phase of the data analysis involved conducting a content analysis of the critical incident summaries and evaluations for this research study. Categories for emergent themes and patterns were developed and the data were coded accordingly.

Findings

The analysis of the critical incident data revealed several implications for HRD practice. The first theme addresses the value of the activity for modeling evaluation in teaching and training. Insights into the instructional design process was the second theme. The third area of learning resulted in increased self-consciousness about one's own assumptions and beliefs and related communication issues that affect individuals' learning styles. The findings will be reported by each theme.

Increased Understanding About Evaluation From the data provided by the students it is clear that they saw the critical incident activity as an effective evaluation tool for providing "instant feedback" to me about how they thought the class was proceeding. By modeling the use of evaluation as formative feedback, students were able to learn how constructive information could be used in a non-threatening, productive way; that evaluation can be a positive endeavor and not something to be feared or dreaded. It also illustrated how qualitative data can be analyzed collaboratively. One student on the final evaluation survey said, " It helped me see how narrative can be gathered and compiled in a way that allows the readers to draw conclusions (rather than the researcher making firm conclusions from the data)." For one student the key was learning that evaluation is a process: "Now I see more clearly that evaluation is a continuous activity that we have to conduct throughout our entire lives."

Several students mentioned that the critical incident activity was an effective method "for both the students and instructor to really know what is going on in class." Students were also able to see the application of evaluation to training and how the trainer must often adapt her methods or approaches to meet the needs of different groups. For example, one student wrote,

> It provided good feedback both ways to help the students understand what was happening in the course as a whole, and it was good for you to understand where students were coming from. I noticed you modified things every so often to accommodate our needs. This was very positive.

All of the students responding to the final evaluation of the critical incident activity recommended I not only continue using the process in my other courses, but that critical incidents be used in all of the Master's program courses. As one student explained, "I would have liked to have them in all my previous classes. I think they also give you (the instructor) important feedback during the course of the class that normally you might not get until the end."

Increased Learning About Instructional Systems Design The most significant learnings were related to issues concerning the design and implementation of instructional programs. The themes that emerged from the data included the value of experiential learning and group activities, appreciating individual differences, the helpfulness of handouts (transfer tools), the importance of maintaining an effective pace for the course, and the meaningfulness of establishing a positive relationship between the students and instructor.

Learning from Experiential, Hands-on Activities Nearly every critical incident form contained comments on the positive aspects of the experiential learning exercises and activities that were used in class. Whether it was designing a survey in small groups, addressing the politics of evaluation through a small group case study exercise, or sharing their own work in small groups, the students always wrote about the helpfulness and amount of learning that took place through group interactions. As one student explained,

> I think you have learned some things about us as learners. For example, I think these sheets gave you insights into the relative lack of research background we have. I think you learned that we like to have an activity in each class.

After a small group activity where students read excerpts from Wheatley's (1993) book, Leadership and the New Science, another student wrote, "Our group had a very stimulating discussion. It brought out some excellent and diverse insights. Some really interesting thoughts to chew on." Comments such as these reinforced the importance of designing instruction that is situated in the context in which learning takes place and is based on the interactions between individuals and groups. (Wilson, 1993)

Benefits of Group Activities In addition to the students enjoying the experiential learning activities, they also frequently mentioned the value of just working together and obtaining feedback

from each other. After one small group discussion, one student wrote on her critical incident form, "It really helped to get together in groups to clear things up." Another said that he liked hearing normally silent people speak up in small groups. In one of the courses, a student thought the group was "bonding" particularly well because of the critical incident activity. After one student's personal story about a situation at home, one person mused, "we're getting to be a real cozy group."

Valuing Individual Differences Nearly every week, students expressed surprise and interest in the variety of perspectives their peers represented on issues discussed in class. This realization helped students appreciate the need to design instruction that allows for differences in work experience, ethnicity, gender, and other variables that affect how we view the world. Three students described their learning in the following way:

> I was surprised at times by the varied reactions of other students. The variety of answers to some of the questions were sometimes poles apart. It surprised me how people interpreted some of the things discussed in class. It was a positive experience because it gave me a little more tolerance for other people's opinions.
>
> It was interesting to hear other's reactions and why they thought the way they did. They often surprised me, but made me more aware that others have a different perspecuve.
>
> You can't please all the people all the time. Every activity seems to have some supporters and some dissenters. Often what was someone else's favorite activity bored me. Therefore, a variety of activities is important to engage all - at some point!

And, even though most of the students had already taken an adult learning course, the critical incident activity further reinforced the need to design instruction for individuals with different learning styles. As one student explained, "I learned how varied learners are and how important a variety of approaches are so that everyone can benefit or learn." In spite of differences in perception, students would often express gratitude to other students for helping clarify a point, provide an example, or agree about some point of confusion. Several students wrote that they were impressed with other students' "wealth of knowledge."

Helpfulness of Handouts In teaching students about how to design instruction that maximizes the transfer of learning, the use of job aids is often recommended to help trainees remember important material from the training experience. I make it a point in my classes to provide many handouts on different colored paper. While I have been accused of killing many trees, the students' critical incident comments often referred to the usefulness of the handouts and how they will be able to use them later back at work.

Maintaining an Effective Course Pace Students often noted on the critical incident forms that they liked being given choices about how to conduct the class. I often asked them to decide how much time they needed for a particular activity, or if they wanted to do an exercise to further reinforce a concept or go on to the next topic. Their written comments confirmed they liked having these choices. Furthermore, their feedback provided information for making course adjustments. For example, by identifying what they found to be confusing or puzzling, they were able to communicate the need to spend more time on a particular concept in a future class. These "mini-needs assessments" enabled me change the speed of the course's delivery.

Enhanced Relationship Between Students and Teacher A theme throughout the critical incidents and one emphasized in the final evaluations was students' appreciation of how the activity allowed me to "listen" to students' needs and to respond to their concerns in a "forthright manner." One student explained, "I felt I had a vehicle to let you know my likes/dislikes about class. I felt you were listening to what we said." Another student wrote, "I was so impressed with how well you 'listened' to us via this vehicle. The form helped to focus on items that I normally would not have written about (and thus not thought of or maybe not recognized)." My ability to listen and respond to students issues, concerns, confusions and positive comments, contributed to a collegial working relationship that reflected a true adult learning experience.

Increased Self-Awareness of Own Learning Style Not only did students see the value in the critical incident activity for instructional design and evaluation, but they appeared

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to develop a better sense of their own learning style. The activity became a catalyst for students to critically reflect on themselves as learners, which for some, was a relatively new experience. The following comments describe this effect:

> For me it helped analyze my "learning" each class and helps bring the class to a close.
>
> I have learned that over the years I have become increasingly self-conscious about my classroom behavior to the point that I often over-reflect after class about something I said or did in class and how it was received by other people. I liked the critical incidents because it allowed me to reflect before I leave the class.
>
> I've learned that sometimes I'm quite a unique individual, while at other times I'm right in line with other students. The main thing that has helped is that it has given me a chance at the close of each class session to reflect on the activities of that class. That immediate reaction really helped me to retain more of information discussion each session.
>
> I am more similar to my cohorts than I might have thought! I am human and it's great to know that!
>
> So often we go through our days...and we never think back about what we did, why we did it, and how we could improve. It [the critical incidents] helped to focus.

Conclusions

While I was fairly confident that the critical incident activity would be useful, I did not expect quite the overwhelming support it received by the students. Though there were a few groans in the beginning (reflecting the "another form" mentality), after the second or third one, most students became serious and committed contributors.

The benefits from using the critical incidents were many. In addition to reinforcing the value of evaluation, designing active instruction for a variety of learners, and self-reflection, they seemed to contribute to the group's development as a cohort of learners. Because I did not require every student to hand in the critical incidents each week (it was strongly recommended but voluntary), I often did not receive one from each student. I told the students that was fine, but they were missing an opportunity to share their thoughts. Some students explained that on some nights they just had nothing to say, or were too tired. While this was a legitimate explanation, I've decided to make some changes in the process in future courses. I want to further capitalize on the students' learning. I have now copied the critical incident forms on NCR paper so that students will be able to turn in one copy to me and keep one copy for themselves. At the end of the semester they will be asked to write a two-to-three page reflection paper using what they have written on the weekly forms. I hope this assignment will spur increased participation and thoughtfulness of their responses, and most importantly, will provide them with a final pulling together of everything they experienced in the course.

The critical incident method has much to offer HRD instructors. It provides us with an approach that models what we teach - the need to build adult learning principles into our instructional designs. While this research was exploratory, it lends promise and hope to enhancing our teaching.

References

Brookfield, S. D. (1986). Understanding and facilitating adult learning. San Francisco: Jossey-Bass.

Brookfield, S. D. (in press). Becoming a critically reflective teacher. San Francisco: Jossey-Bass.

Killion, J.P. & Todnem, G. (1991). A process for personal theory building. Educational Leadership, 48, (6), 14-16.

Kolb, D. A. (1984). Experiential learning: Experience as the source for learning and development. Englewood Cliffs, NJ: Prentice-Hall.

McCarthy, J. & Still, S. (1993). Hollibrook accelerated elementary school. In J. Murphy & P. Hallinger, (Eds.), Restructuring schooling: Learning from ongoing efforts. (pp. 63-83) Newbury Park, CA: Corwin Press.

Osterman, K.F. & Kottkamp, R.B. (1993). Reflective practice for educators. Newbury Park, CA: Corwin Press.

Preskill, H. (1994). Evaluation's role in enhancing organizational learning: A model for practice. Evaluation and Program Planning, 17, (4), 291-297.

Saban, J.M., Killion, J.P., & Green, C.G. (1994). The centric reflection model: A kaleidoscope for staff developers. Journal of Staff Development, 18, (3), 16-20.

Schmale, R.L. (1994). Promoting teacher reflection through guided book reviews. Journal of Staff Development, 15, (1), 30-33.

Schon, D. A. (1983). The reflective practitioner. New York: Basic Books.

Schon, D. A. (1987). Educating the reflective practitioner. San Francisco: Jossey-Bass.

Tripp, D. (1993). Critical incidents in teaching: Developing professional judgment. New York: Routledge.

Wilson, A. L. (1993). The promise of situated cognition. New Directions for Adult and Continuing Education, 57, 71-79.

Woods, P. (1993). Critical events in teaching and learning. London: The Falmer Press.

Using a Real-Time Feedback System in Managerial Education

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One of the challenges educators face is improving the quality of instruction. This exploratory study investigated whether an immediate feedback system (IFS) added value (quality) to students' learning experience. The technology of the IFS permits instructors to assess students' comprehension of seminar material and immediately examine aggregate results. The author using an IFS with a total of 207 managers attending continuing education seminars found that the IFS added value to students' learning experience.

Improving the quality of classroom or seminar instruction is a challenge all educators face. The author of this study focused on two different aspects of quality. One aspect of quality focused on students as customers of instructional processes. As customers, they have expectations regarding the content and process of the instruction they received. Some processes instructors use may add value to students' learning experiences. The literature suggests that students categorized as adult learners have specific expectations of their learning experiences. According to Knox (1987), adult learners prefer active roles as users of education instead of recipients of education. Furthermore, effective teaching depends on being responsive to the students in the classroom (Apps, 1991). Therefore, the teaching process instructors use may well affect students' perceptions of the quality of instruction.

The second aspect of quality focused on reducing the gap between current and desired comprehension of seminar material. Instructors have traditionally used periodic exams to determine students' comprehension of reading and lecture material. This examination process, however, does not give instructors real-time feedback to determine if students comprehend material shortly after they have read or listened to the material. Finally, the danger with this process is that students have to do most of the work in comprehending the material even if instructors do not present the material clearly.

One of the major ways to improve quality is to improve the process or operational steps used to turn input (resources) into output (outcomes). Instructors need a process that enables them to gather information about students' baseline knowledge proficiency and mutually establish learning objectives. According to Knox (1987), the most valuable information instructors can obtain to help adults learn is information about their current proficiency (knowledge, attitudes, skills) in areas they wish to receive education. Proficiency is the capability to perform effectively if given the opportunity. Typically this entails the combination of knowledge, attitudes, and skills. Knowing current proficiency, instructors and students can mutually establish desired proficiency. Collecting parallel data about current and desired proficiency helps instructors identify discrepancies. However, it is difficult to obtain such data in a non-threatening manner and to quickly turn the data into information that is useful for instructors and students.

A new user-friendly teaching method is available and is the focus of this study. This new teaching method enables instructors to use a real-time assessment of students' comprehension of seminar content and their evaluation of seminar content and teaching. Technology makes it possible for instructors to use an immediate feedback system (IFS) to create a real-time feedback process between teachers and students. The system consists of a computer, an interfacer linked to the computer, remote response pads, an authoring program in which the instructor can write quiz questions and teaching evaluations, and an LCD overhead projector. Instructors project a quiz question with alternative answers on an overhead projection screen after they have presented specific seminar content. Students enter their responses to the questions on their remote response pads. Within minutes student aggregate results are presented on an overhead screen.

The IFS can be used to assess students' prior knowledge (understanding) of seminar content at the beginning of the seminar. This type of proficiency testing does may not make adult learners anxious because students' responses remain anonymous. The instructor and the students have an opportunity to view aggregate results projected on an overhead screen and mutually

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determine the baseline understanding of the seminar material to be presented. The objective of this assessment is to alert instructors about high and low knowledge areas. This method provides instructors with information that can be used to mutually establish learning needs with students and to allot more time to teach in areas of low knowledge.

Throughout the seminar, instructors uses the IFS to determine students' comprehension of the seminar material shortly after the instructors present the material. As a technological teaching tool, the IFS could also help students increase their comprehension of seminar content in an interactive and non-threatening manner. Using the IFS, instructors know immediately if they need to present seminar material again to increase students' comprehension. This is a radical departure from the traditional evaluation which suggest that there is range of comprehension because of students' ability to grasp the material. The author's belief is that instructors need to present seminar content in a manner that increases the comprehension for all students. Therefore, a student's comprehension of seminar material is in part, dependent upon the instructor's ability and skill to present material clearly.

The quality of instruction can also be improved by collecting feedback throughout the seminar instead of waiting until the end of the seminar. McCaskey (1993) recommends using feedback sheets throughout a course. However, this means that the data on each of the feedback sheets needs to be tallied and then a report needs to be generated from the data. The IFS makes it easy to conduct real-time student evaluations of the seminar content and the instructors' presentation throughout the seminar. In a typical one-day seminar an instructor can ask students to evaluate throughout the seminar. The aggregate evaluation results can help instructors make adjustments in their selection and delivery of seminar material.

The department the author works in was interested in determining whether students felt that the quality of their learning experience was enhanced by using an IFS. If students felt positive about using IFS then the department would purchase an IFS. The author conducted an exploratory research study to measure students's reactions to the following research questions:

1. Will students report that the IFS system helped them increase their comprehension of seminar material?
2. Will students perceive that an IFS added value to their learning experience?
3. Will the IFS help an instructor adjust the selection and delivery of seminar material?

Method

The participants in the study consisted 207 managers attending non-credit continuing education seminars in managerial development participated in the study. The participants were 72% male and 28% female. The organizations represented were 59% manufacturing, 39% service sectors, and 1% not-for-profit. The size of the companies ranged from 50 to 5,000 employees. The average number of years of managerial experience was 10.7.

Measures. The author designed a brief survey with three measures to measure students's reaction to the IFS. One measure (3 items) assessed whether the IFS helped students know if they comprehended the seminar material. Examples of items include "The IFS helped me find out how much I knew about the seminar material before the instructor presented the material, and the IFS helped me determine whether I understood the seminar content the instructor presented." The second measure consisting of three items assessed whether students' felt the IFS added value to their learning experience in the seminars. Examples of items include "The IFS significantly added value to my learning experience, and I would like to see all seminars use an IFS." The third measure (3 items) assessed the instructor's selection and delivery of the seminar material. Examples of items include "The IFS helped the instructor make appropriate adjustments in delivering seminar material, and the IFS helped the instructor effectively determine whether the seminar content was relevant to the students." A five-point Likert response scale ranging from (1) Strongly Disagree to (5) Strongly Agree was used.

Three open-ended questions were used to gather comments about students' perceptions of using an IFS as a teaching method. The following questions were used: (1) "What did you like about the IFS?" (2) "What did you dislike about the IFS?" (3) "What are your concerns about using an IFS in seminars?"

Procedure. The IFS was used in eight different management development seminars. Each seminar had approximately 25 students. Students' comprehension of the seminar topic was assesses using a combination of twenty multiple and true-false questions at the beginning of the seminar. During the seminar the instructor projected four to five quiz questions every hour and half during a six hour seminar. Quiz questions tested knowledge comprehension of mini-lecturettes and assessed whether participants could apply seminar content to case situations. Students responded to all questions in less one minute. The instructor and the students then discussed the aggregate results. In situations where comprehension was below 90%, the instructor presented material again and retested comprehension again until a 90% comprehension level was attained. In re-test situations the instructor conveyed that the objective was to communicate the content clearly until students had an overall 90% comprehension level.

At the end of the seminar, participants were asked to evaluate the use of the IFS by responding to the survey items described above under measures. Survey items were presented on the overhead project screen. The aggregate results of their evaluations were not shared with them until they had answered all of the evaluation questions. This was done to prevent aggregate data from biasing individual responses.

Results

The majority of students (65% strongly agree, 27% agree, 8% neutral) reported that the IFS system helped them know their comprehension level of the seminar material. Most of the students (62% strongly agree, 25% agree, 13% neutral,) indicated that the IFS added value to their learning experience. Many of the students (60% strongly agree, 24% agree, 16% neutral) recommended that an IFS should be used in future seminars. Students (40% strongly agree, 38% agree, 20% neutral, 2% disagree) indicated that the IFS helped the instructor adjusted the selection and delivery of seminar material.

Students' written comments to the three open-ended questions were analyzed by a research assistant after the seminar. The main focus of the analysis was to note the frequency of specific similar comments. Three main comments were observed in response to the open-ended question "What did you like about the IFS?" The IFS was a non-threatening way to find out how much I and other students understood the seminar material and the instructor. The feedback was immediate and we (students) could see the results on the screen. The IFS approach puts emphasis on making sure the we understand the seminar material. The main comments to the question "What did you dislike about the IFS?" had to do with difficulty students had reading the print on the overhead projector and that the seminar instruction was slowed down by using the IFS. A couple of the comments suggested that too much emphasis was placed on trying to make sure all students comprehended the material. The common responses to the last question "What are your concerns about using an IFS in seminars?" are as follows. Not all instructors may be able to use this approach (IFS) because they may feel threatened by immediate feedback indicating that students did not understand the instructor's presentation. The IFS may not be appropriate for students who cannot read fast. The frequency of quiz questions using the IFS seems to be more appropriate for technical based seminars than people management seminars.

Discussion

Based on the results it appears that (1) the majority of students felt that the IFS added value or quality to their learning experience, and (2) the IFS is an effective non-threatening way to assess

students' knowledge and comprehension of seminar material. The IFS as a teaching delivery method appears to be especially important with students (adult learners) taking non-credit continuing education seminars because there usually is no assessment of knowledge comprehension. Adult learners do not like taking exams. However, the adult learners in this study were not bothered by responding to comprehension quizzes. It appears that the IFS did not stimulate feelings of anxiety.

The IFS also helped to involve all of the students in the seminar, a task which is sometimes difficult in seminars of 25-35 people. Traditional methods of teaching do not permit full participation. Sometimes a few highly verbal students may dominate discussion in seminars. Sometimes quiet and reserved students may go through an entire seminar without interacting with the instructor or contributing to large group discussion. As a teaching delivery method the IFS is an effective non-threatening manner to increase students' attention and participation in the seminar.

As a result of using the IFS the author learned more about the link between his delivery of seminar content and students' comprehension. Without the immediate feedback in the seminar, the instructor may have missed receiving invaluable information regarding areas that students did not comprehend. In the past the instructor encounter silence after asking students if they had any questions regarding the material he just presented. However, because the IFS conducts anonymous assessments students receive immediate feedback regarding their comprehension of the instructor's presentation. The major goal of the instructor is to help all students gain their highest possible level of comprehension.

Any results of this study need to be interpreted with caution. It was intended to be a simple exploratory study, therefore, the research design is not rigorous. Although over 200 non-credit continuing education students participated in the study, no generalizations from this study can be made to students taking traditional credit courses. In addition, only one instructor was used to test the IFS, therefore, it is not possible to generalize to other instructors and their students' reactions to the IFS.

Future research should address the following areas. A quasi-experimental study using two groups of adult learners taking non-credit continuing education seminars should be conducted. Comparing students using and IFS versus students with no IFS would help determine whether there is a significant difference in students comprehension of seminar material. A second quasi-experimental study should be conducted with instructors and students in traditional credit courses. A third study could investigate if students's reactions to using the IFS is different when their individual responses are known to the instructor versus remaining anonymous. It is possible to record each individual answers to quiz questions by assigning response pads to students. Finally a study should be conducted to determine the extent to which the IFS is effective in surveying students regarding sensitive questions such as sexual harassment. Classroom discussion of sensitive issues may increase as a results of students giving anonymous responses and then seeing aggregate results presented on an overhead screen.

To conclude, the author will continue to use an immediate feedback system in teaching because students find value in using the system. If students are truly customers of the teaching process, and improving students' proficiency is a major goal, then it is imperative to continue investigating new methods of assessment and evaluation. The author encourages other instructors to consider using an IFS in teaching students.

References

Apps, J.W. (1991). Mastering the teaching of adults. Malabar, FL. Krieger Publishing Company.

McCaskey, M.B. (1993). Collecting feedback throughout the course. Mastering Management Education. Innovations in teaching effectiveness. Editor, Charles Vance. London: Sage Publications. pp. 237-239.

Knox, A.B. (1986). Helping adults learn. A guide to planning, implementing, and conducting programs. San Francisco: Jossey-Bass Inc. Publishers.

Instructional Use of Compressed Video Distance Teaching: A Responsive Evaluation

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Interest in distance teaching is due to the appeal that it has to a very broad based constituency. In 1991 a southwestern university established a network to deliver distance education classes. Although satisfying the intent of instructor managed telecommunications classes, there was a critical shortage in support services for faculty. This study, designed as a responsive evaluation, identifies faculty support, training and administrative issues that must be addressed in managing this type of instructional delivery.

The current enormous interest in distance education is due in large measure to the appeal that it has to a very broad based constituency. It seems to have something to offer to almost everybody. (Garrison, 1990) Distance Education is in fact, a phenomenon whose time has come. In an elementary sense, distance education concerns learners that "happen to be separated" from the instructor. In all types of instruction, education must experience the interactive communication between student and teacher; distance education allows this to happen. In the early years of distance education, however two way interaction was not the standard.

Distance Education in the United States is generally recognized to have begun in the mid 1850s and inspired by Reverend W. Sewell of Exeter College, Oxford. Reverend Sewell suggested off-campus study through a system of lecturers. American James Stuart, in 1871, proposed a traveling circuit of lecturing professors who later became the University Extension System at the University of Cambridge (Brittner, 1933).

In 1873, Anna Eliot Ticknor established a correspondence school for women out of her home in Boston. The "American Society to Encourage Studies at Home", enrolled more than 7,000 women in its university-level correspondence courses over a period of 24 years (Brittner, 1933). This was the first formalized distance education program for women in this country.

With the success of Ticknor's school in Boston, correspondence study caught on in the late 1800s, and was offered by universities in Pennsylvania, New York, Illinois, and Wisconsin. Penn State and the University of Wisconsin were among the first to offer courses in the United States through extension divisions using correspondence study (Williams, 1994).

Although the subject of much research through the years, it was not until 1972 that the term "distance education" was first used to describe the distinct field of discipline formulated by the family of educational practices that had sprung up around correspondence education. Initially limited to the technologies made possible by the mail system, "correspondence study" adapted to other technologies, especially those from the field of electronics, and today includes audio, video, computing, and satellite (Williams, 1994). You can indulge in distance learning by reading books, but if you indulge in distance education you are necessarily involved in a two-way communication process. There must be a feedback mechanism for education to happen (Perry, 1986).

Distance education responds to opportunities that either depend on or are more powerfully realized with electronic delivery. Telecommunications based education needs to be conceptualized and perceived as an extension of the parent organization's mission. Therefore, teaching is then re-conceptualized and a new perspective is brought to the content and delivery of education, the needs of the individual learners and undeserved constituencies, and the parent organization's mission and competitive position (Duning, 1993).

Faculty involvement into distance education does not happen over night. In fact the mere introduction of distance education causes most faculty to shudder at the thought of such a change. The literature on change recognizes the tendencies of individuals, groups, organizations, and entire societies to act so as to ward off change. Change, however is a process or series of events

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occurring over a period of time, usually involving a more or less orderly and somewhat predictable sequence of interactions (Klein, 1985).

Allan Knox's (1986) research supports the need for faculty development programs in the field of adult education. In his findings, Knox reports that although adult educators generally are experts in the content they teach, often they are not adequately prepared for the challenges of helping adults learn in both traditional and non-traditional learning environments. Therefore, from time to time, adult educators need advise about the problems and challenges of teaching. These findings are especially relevant in today's high tech virtual teaching environments where teachers and students meet electronically via phone lines and satellite transponders(Williams, 1994).

The Trans-Texas Videoconference Network

Prompted by the expansion of The Texas A&M University System (TAMUS) from four universities to eight, Texas A&M University began working in 1989 with GTE Southwest to assess the feasibility of implementing a state-wide high-speed data and videoconferencing network. Consolidation of costly leased data links and connection of computing resources at the far system parts became a high priority for the uniform management and exchange of information in both the administrative and research sectors. Digital two-way interactive videoconferencing service provides a convenient avenue for meetings and classes with signals which travel simultaneously on the same telecommunications links as computer data (Staff, 1991).

Construction of the TAMUS Interactive Services Data Network began in early 1990 with funding authorized by the presidents of the system universities which include Prairie View A&M University, Tarleton State University (Stephenville), Texas A&M International University (Laredo), Texas A&M University-Corpus Christi, Texas A&M University at Galveston, Texas A&M University-Kingsville, Texas A&M University (College Station), and West Texas A&M University (Canyon). Moreover the directors of the agencies collaborated which included the Texas Agricultural Extension Service, the Texas Agricultural Experiment Station, the Texas Engineering Extension Service, the Texas Engineering Experiment Station, The Texas Veterinary Medical Diagnostic Laboratory, the Texas Transportation Institute, and the Texas Forest Service.

In the third quarter of 1990, VideoTelecom Corporation (VTEL) of Austin, Texas, was selected to provide videoconferencing systems. VTEL systems incorporated an array of features important for the support of teaching and meetings.

For transmission of videoconference signals plus data between university computing centers, a system of land-based T-1 telecommunications links were leased through GTE Southwest and ATC Telecommunications. T-1 lines are essentially high-capacity, high-quality telephone circuits which provide cost effective 24-hour service. T-1 telecommunications utilizes a combination of fiber-optic, microwave, and standard telephone technology to provide a 1.544mbps bandwidth which accommodates the 768kbps videoconference data stream and a variety of data channels for computing services.

Therefore, TAMUS became Texas' first institution of higher education to implement a major digital videoconference network in the spring of 1991. The Trans-Texas Videoconference Network (TTVN) is currently the nation's largest university-operated two-way interactive digital video communications network.

The TTVN continues to be Texas' fastest growing academic videoconference network. During the fiscal year ending August 1994, the network carried 2,543 videoconferences and 74 telecourses which totaled over 6,126 hours. These 74 telecourses included 16 different areas of curriculum, which involved virtually all TAMUS institutions (Staff, 1991). Twelve new videoconference facilities were added during this fiscal year bringing the total to 36 encompassing 17 Texas cities and towns. Many of these installations are attempting to meet the increasing demands of distance education activities. Several TAMUS campuses have installed second videoconference systems to accommodate extensive telecourse schedules.

This network was established to provide instructor-operated, high quality educational telecommunications. VTEL equipment is designed to be operated by the instructor without the need of an on-site technician. All of our professors operate all phases of the in-class equipment. There is however a systems operator for the overall maintenance and management of the network. Our 36-site system has a technical staff of three individuals. In most cases, professors are alone in

the classroom to operate the cameras, VCRs, multimedia presentations, and the overall classroom management.

Methodology

Although satisfying the intent of the administration for providing instructor managed educational telecommunications classes, it became apparent to this researcher, after using this network for three years, that there was a critical shortage in support for faculty and students exposed to this system. In December of 1993, the author approached the Associate Vice Chancellor for Information Resources of The Texas A&M University System about the critical need to examine the support services available and potentially recommend additional services to support faculty and students in instructional delivery. The following study was authorized and begun in January 1993.

This study was designed as a responsive evaluation of distance education on the network campuses. The distinguishing characteristic of responsive evaluations is its focus on the concerns and issues of the persons who have a stake in the evaluation (Borg, 1983). There are four major phases that occur in this type of evaluation.

The first phase involves initiating and organizing the study. This phase also identifies the stakeholders who would have an input into the process. One must also identify the political and other factors that would possibly influence the outcome. These factors were identified by a series of interviews by team members and the stakeholders on each campus.

The second phase is to identify the concerns, issues, and values of the respondents. These issues were identified by a series of interviews and questionnaires administered to a sample of the stakeholders on each campus. These issues and concerns expressed some underlying values of the stakeholders.

The third phase of a responsive evaluation is to gather information that pertains to the concerns, issues and values identified by the stakeholders. The researcher should also collect descriptive information about the entity being evaluated and about the standards that will be used in making judgments concerning the entity. In this particular step, the researcher collected information relative to each campus and used thick descriptors to tell the story.

The final phase of a responsive evaluation is to prepare reports of results and recommendations. It is important to realize that unlike other positivist research, responsive evaluators do not specify a research design at the outset of their work. Instead, responsive evaluators use emergent designs, meaning that the design of the research changes as the evaluator gains new insights into the concerns and issues of the stakeholders (Borg, 1983).

Research Questions The research questions listed below were developed to frame the study.

1. What support services are required to assist instructors and students in distance education courses?
2. What training programs should be in place to support educational use of the network?
3. What are the administrative issues, such as scheduling, residency, registration and so on that should be clarified?

The faculty were asked to respond to the above research questions from three frames of reference: faculty, students, and technology. Therefore, the discussion of the issues will also follow this pattern with the results framed around the research questions.

Discussion of Issues

Faculty Distributing handouts to the classes continues to be a major concern. Planning two weeks ahead is a problem when one term the class is on weekends and the next term it on one evening. So far, neither fax, nor mail, nor messenger have been totally reliable.

There needs to be someone at the remote site who knows, and can troubleshoot the equipment as well as operating the cameras. (Technical proficiency with the equipment should

not be required of students or faculty.) This person, not the students, should also be able to answer questions about scheduling, be responsible for distributing paperwork from the professor, and for collecting assignments from students and sending them to the professor, etc.

An important concern of the faculty at a small regional campus was the different campus calendars. If the network is to grow and be successful, it is necessary for all the involved sites to adopt the same calendar. (To recognize the magnitude of the problem, consider two sites that start the spring semester on different days, end on different days, and have spring break at different times. One could have a potential four week mismatch.)

Other faculty concerns dealt with flexibility of room arrangements, access to the Internet in the room, and a computer included in the room for use in multimedia presentations. Also the television monitors in the rooms should be at least 35". In some cases the size of the monitor makes it impossible for the instructor to preview the textual and graphic material before sending it because the professor cannot see it from the location of the podium. (This may also speak to room arrangement)

Especially in graduate classes or other adult education situations, it is important not to be "tied" to the podium during class. It would be helpful to have a wireless lavaliere microphone for the instructor and better sound equipment at the remote sites as well.

There needs to be some way to alleviate the problem of access to the instructor for written questions. The fax machines in the rooms should be high quality ones. This was especially a problem with courses in engineering and mathematics where the degradation of the printout caused by poor quality rendered the output unreadable.

Should the courses on the network be limited in size? What size? Another concern of the professors is the question of the number of sites at any one time. This also introduces the question of the minimum and maximum number of students at a given site. Should one teach a class with only one remote student? Another concern is the factor of faculty load. Currently a network class does not count any more than a traditional class, however the preparation and management of the class during the semester is much more time consuming.

A concern of graduate faculty members is the availability of video conference rooms after hours and on weekends. This is due in part to the schedule of some graduate classes to a weekend format where the rooms need to be available on Saturdays and some Sundays. Moreover, on some campuses there are not dedicated videoconference classrooms and, in some instances, videoconference activities do not take precedence over other scheduled activities in the same room. This causes problems when trying to schedule activities with multiple sites and finding the teleconference room booked for a different event.

Since the sites, in multiple site transmissions, are voice controlled, the professor has no control over which site is on the screen and cannot control the movable cameras at the distant sites. This is another situation where a technical support person is needed at the remote site to operate the equipment.

Somehow the system needs to be improved so that chalkboard/whiteboard can be used by the teacher. This becomes critical when courses like engineering math are taught where very complex problems that usually take the entire board are to be displayed. A teacher just cannot adequately display these problems using display cameras. An additional camera with an operator would go a long way toward addressing this problem.

A simple system is needed for assisting the faculty in sending and receiving papers from the distant students. Here again the need for an operator is necessary.

Registration policies need also to be addressed. The current system allows for distant students to register for classes in one of three ways: through the send site institution as a resident student, through the distant site institution as a resident student of that institution, or for continuing education credit from either institution. The problem is that in at least two of the three options listed above, the instructor has no way of knowing how many, if any, students are expected. This is very frustrating for the instructor if one distant site is selected and there is no way to estimate how many individuals to expect. Another consideration is how many individuals at a distant site constitute a class. If an instructor has a full class at the local site and only one student at a remote site, what is the incentive to the local site to utilize distant education technology? Moreover, it takes a tremendous amount of additional preparation before, during and after each class to teach at a distance. Where do we reach the break-even point in dollars or quality?

Another key question was faculty load. Currently, if a professor had two sections of a class with each class having at least 10 undergraduate students and the class was taught on the local campus, the instructor would receive credit for two sections. However, under the current policy, if the same scenario were to include one of the classes local and one of the classes remote, the instructor would receive credit for the only one local class although the preparation is almost equivalent to two sections. We must build these distant classes into the calculation for workload. Moreover, if that remote site is constituted of 10 students and only three are registered for credit with the host institution and the rest are receiving other types of credit, we should still grant the credit for the class as a part of the faculty load. It should make no difference where the credit is being counted; the same amount of effort and preparation is still required of the professor.

Residency credit for doctoral degrees is also a concern. As current policy allows all distant classes to be shown on transcripts as resident credit classes, it is possible for an individual to satisfy all residency requirements without ever stepping foot on campus. We should find a way to distinguish between resident credit courses and courses taught at a distance.

Additional budget allocations should be made to departments that are to teach on the network. These additional funds could be used for photocopying, postage and fax costs needed to send materials, books, reference resources, etc. to remote students. These funds could also be used to support some travel necessary for the class.

There should be some time available, when necessary for on-line office hours for the professor to be able to interact with the students outside of a classroom setting. There were several solutions suggested such as The Texas Education Agency's computer network (TENET). This is a system similar to Compuserve or Prodigy. The annual registration fee for university students is $25 which would allow, with local number access, to have unlimited access to the Internet, and therefore access to the instructor for on-line conferencing.

Faculty Views of Students using the Compressed Video Network A highest priority was providing adequate, timely assistance when technical problems arise during class, so as not to disrupt class. This again calls for the need of a skilled technician to operate the cameras and be available when technical problems occur, as they do.

Another popular request was for dedicated rooms at each of the sites for the sole purpose of distance education classes. Because space is such a prime commodity on all campuses, network rooms are also used for other purposes. This causes a real problem in the lack of flexibility of room arrangements as well as the use of the rooms.

There should be a time at the beginning of each semester to provide a hands-on orientation to the distance learning classroom, and technologies. With some classes, taking this time during a class is not possible due to the time necessary to present class material. A training session for the students could be offered that would include a handbook/manual that can be referred to later.

Synchronized scheduling of semester and holidays is a must. With different beginning and ending dates as well as different holidays, the students become frustrated and sometimes unable to take vacations with family members. This only distracts from the learning that should be taking place.

The opportunity to give feedback to the faculty at times other than class time is necessary. And, along with this, the availability to have Internet access and computer availability in the classroom is a must.

As far as the environment of the classroom is concerned, network rooms should allow the total number of the people in the room to be seen at one time and not by pulling the camera back so far that no one is recognizable. This may require a policy to limit the enrollment of distance education classes. Also a lavaliere microphone and a remote control mouse for portable computers for multimedia presentations are necessary. It is suggested that all equipment be thoroughly tested prior to the beginning of each semester to head off any potential problems later.

Class facilitators should be used for the duration of each class, and these should not be registered students in the class. Class facilitators should be trained in advance to fax materials, distribute handouts at the proper time, and honor other requests made by the instructor. Also: arrange the room, operate cameras, and other equipment. At some sites, the fax and duplicating equipment may not be located in the same area as the distance education classroom.

Faculty must be trained for teaching on the system, and this does not mean a one to two hour lecturer/workshop. There needs to be faculty support provided in instructional design and

curriculum development. If faculty are to use this new technology, they must be educated to take full advantage of its capabilities. It is no longer possible to use the same curriculum design of a traditional class and force it into an educational telecommunications setting.

It is important that network-wide e-mail protocols be made available to all faculty and students using this technology to ensure contact with professors is maintained. It is also suggested that an orientation to distance learning be taken by all students prior to other courseware taken on this media.

Technology/Administration/Library It is important that a practice room be provided for each campus where instructors can rehearse their classes.

There should be some way for the administration to bring together faculty who have taught on the network on a regular basis (each semester?) to dialogue with other faculty who are also teaching on the network. Topics could include: *What are some of the more creative strategies teachers have used to teach material? How do these strategies vary depending upon the nature of the course and the level it is being taught? How do teachers use pop quizzes? How are library resources used? Do you require a massive literature review for your doctoral students at a distance, if so, how is it assigned?*

How are faculty selected and evaluated for teaching distance education classes? Should a standard evaluation instrument to evaluate course expertise and professor performance be adopted? Why do faculty participate in telecourse teaching? Is this participation volunteerism or coercion? Is there release time granted to prepare courses for this type of delivery? Moreover, instructors should be given some kind of extra incentive for teaching on the network. Additionally, research should be conducted on teaching with electronic telecommunications. As this is an emerging field, empirical data would assist administration in planning decisions.

Another question was what should be taught on the network. Obviously not all courses should be adapted to this technology, although all could. In the early stages of transition, some are more easily adapted. Who decides? What are the criteria?

The issue of scheduling of the network was again a concern. The current policy calls for individuals to call the network office to check if the network is available. The next step is to call each individual site and check on room availability. Once the rooms are secure, one must then call the network office again and reserve the network. A computerized system could easily be established whereby one call to the network system operator could do it all. If each site would give priority to the network, and each site was connected by data, the staff of the network could check availability on a common computer and book all sites and the network at the same time. There is no excuse for the individual (usually the instructor) who is scheduling the meeting to have to go through three or four steps to schedule the network and rooms.

It was suggested again that each class booked for the network also have a set time each week for electronic office hours for the professor. As the popularity for distance education classes begin to grow more and more, and the demand for the system continues to escalate, there may need to be a decision made as to whether the system is for instruction or administration. If indeed there is a need for instruction, then we must dedicate a part of the system to instruction, even if that means bumping some other scheduled meetings off the network.

Library and other support materials are needed for graduate classes taught over the system. In some more remote sites, a cadre of students usually travel to larger metropolitan cities to use the libraries on the campuses there. This becomes problematic when large distances separate distant classes from library facilities.

A solution is to have the library available to remote students. (This is an issue that should be addressed by library automation committees.) However, libraries tend to only loan to other libraries, or to individuals who are able to go the location of the lending library. Cooperation between libraries, and between the professor and remote library are essential.

Journal articles are especially important for graduate students who are doing research. Every time an article is copied for loan, it costs money (a loan in this case is really the purchase of one article at a time). Subscribing is not only an immediate cost but an ongoing cost; usually backfiles are also needed. And what is one year of a journal? One journal for a social work program will cost $500 for a few years of microfilm backfiles, plus $95 for the year's subscription. Once the subscription is ordered, it usually will not be in place for the students for at least six months at the earliest and then it will be only one issue at a time.

A document delivery system called Uncover will provide one copy of an article at $15 per article on the average. Moreover, Ariel is also available where one can get five copies as part of the initial fee. These services are not cheap, especially when you consider having to pay these costs just to look at the article and find out if it will truly be useful. It seems that the university receiving the tuition should handle the costs.

Northern Arizona University offers a service to their distant students that is the same as service for local students. They provide an 800 telephone number, fax number and Internet address for students to reach them. A list of citations and abstracts from data bases such as ERIC are provided at no cost. Articles may be requested by providing a citation or by requesting articles on a specific subject. One dollar per article is charged for photocopying of articles up to twenty-five pages in length. Students may also request specific book titles or ask for books on particular subjects. Library cards are sent to the student when books are checked out for the first time. All these materials are sent out usually the same day by Federal Express.

Library collections are a real concern if no major library loan program is instituted. Most library collections are developed by the university's faculty to support local curricula. One of the reasons for importing a course is because it is not part of the local curricula. Thus, there are usually no library materials available to support a remote course.

Conclusions

In this section, the conclusions will be centered around the original four research questions. In the discussion above, several of the recommendations were mentioned by more than one group, although they will only be mentioned once here.

Question #1: What support services are required to assist instructors and students in distance education courses?

- There should be someone at the remote site(s) who knows, and can troubleshoot the equipment, as well as operate the cameras. This person should also be responsible for collecting assignments and other duties as assigned by the instructor.
- All electronic classrooms should have access to Internet and have a computer in the room that can be used for multimedia presentations. These computers should be compatible with either Macintosh or PC based disks.
- There should be some time available on the network, when necessary, for on-line office hours for the professor to be able to interact with students outside of the scheduled class time. Students should have the opportunity to give feedback to the faculty at times other than class time and without the necessity of a long distance telephone call. (i.e. TENET)
- It is important that system-wide e-mail be made available to all faculty and students to ensure contact with professors is maintained.
- Class facilitators should be available for the duration of each class, and these should not be registered as students. Work study students could be hired for this purpose from the additional funds recommended to be allocated to Departments teaching through educational telecommunications.
- A computerized system should be established whereby one call could schedule a meeting/class on the network, reserve rooms at all sites, and coordinate times for the meetings.
- Library and other support materials need for classes should be provided by the host site. This could include an 800 telephone number, fax and Internet address for students. Moreover, students should be able to access all items in the library just as if they were local students.

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Question #2: **What training programs should be in place to support educational use of the network?**

- There should be a time at the beginning of each semester to provide students a hands-on orientation to the distance education classroom and technologies.
- A training session for the students should be initiated that would include a handbook/manual that can be referred to later.
- An additional network room should be provided for each campus where instructors can practice without tying up the system.
- The administration should bring together faculty who have taught on the system regularly to dialogue with other faculty who are currently teaching distance education classes.
- A standard evaluation instrument needs to be used to evaluate course expertise and professor performance. This instrument should be different from the one used in traditional classrooms.
- Faculty need to be trained and this does not mean how to turn on the equipment, but to utilize the advantages of the system.
- Administration should provide faculty access to curriculum specialists who can take the faculty's syllabi and provide assistance in instructional design. Most faculty are using the same instructional design for the distance education class as they are for their traditional class.

Question #3: **What are the administrative issues, such as scheduling, residency, registration and so on that should be clarified?**

- There should be an additional allocation from Departmental Operating Funds to departments that have faculty teaching distance education classes as additional expenditures are required over and above what the current formula allows for traditional courses.
- If educational telecommunication delivered courses are to be successful it is necessary for all the involved sites to adopt the same semester calendar.
- All monitors should be at least 35" for adequate viewing by students and professors at the back of the room.
- Each site should have classrooms dedicated to only videoconferencing, or at least have network activities take precedence over all other scheduled activities in the rooms.
- Registration of students at distant sites should be studied. Currently students may register at distant sites for credit at that site. Under this arrangement, the instructor has no way of knowing how many, if any, students to expect until the first day of class.
- A target class size should be established. Both minimums and maximums are critical for planning purposes. Where is the break-even point?
- Calculation of faculty load for those teaching distance education classes is a major concern. Individual faculty should receive credit for the total students they are teaching, regardless of where they are registered.

- A policy should be developed to determine a way to distinguish between resident courses taught at a distance and those taught locally. Currently there is no distinction on the transcript; all appear as on-campus resident credit courses.

- The necessity of Internet access and computer availability in the classroom is a must.

- Modification of the classrooms so that the entire student population in the room can be viewed at one time should be considered. (This also addresses the need to class size to be studied.)

- There should be increased hours of availability of the rooms, and more than one room should be made available at each location on the network.

- Professors should be given some extra incentive for teaching distance education classes.

- The administration should study all courses and decide what courses should be taught by distance education.

Implications for Practice

It is critical when taking next steps in the process of managing existing educational telecommunication systems to involve leaders at the highest levels of the parent organization. Faculty must be involved in the governance of these systems, however the introduction of telecommunications-based education should be a collaborative effort. A successful process created team is one that is weighted toward professionals who can best consider the non technical questions that are asked (Duning, 1993). One must place the learners needs ahead of organizational convenience and at the center of planning and decision making.

Currently most organizations create telecommunications-based educational programs in an ad hoc fashion. In the absence of instructional design as a resource for instructional environments, and in particular for educational telecommunications systems, learning packages tend to be created by (1) an AV specialist who translates traditional instruction to fit the medium, (2) an educator who directs the AV specialist to accommodate the instructional style demanded, or (3) a tense fusion of the two (Duning, 1993). Educators working in this ad hoc fashion have been doing something for which they were not hired or trained. Moreover, the organization's incentive system was not devised to reward them for such a task.

The shifting priorities this new paradigm provides uncovers a basic organizational principle of which we are all aware: management problems are rooted in long history of the academy and moving toward change must be incremental to be effective.

This researcher would suggest that most organizations have not adapted their units to accommodate the opportunities and impact of educational telecommunications. Most are still trying to force their traditionally delivered classes into the mold of electronic delivery. In the long run, this will not be effective. It is suggested that each campus establish an academic instructional design unit to assist faculty and instructors in distance education course development.

Instructional design can be a valuable and integral part of the telecommunications-based education (Duning, 1993). A major rationale in support of an instructional program is the current practice of diverting subject matter experts (SME) from instruction to design work which is likely not the best use of valuable resources. A unit such as this would free the SMEs to do their job of teaching.

Regardless of the course taken, teaching faculty should not be expected to be the content specialists, curriculum designers, and the technology specialists. The compressed video equipment on the market today is designed for individual faculty and instructors to operate while teaching. However, in this day of the technologically informed student, we can no longer afford to offer classes that merely place traditionally prepared material on the network. Our instructors can indeed operate all the equipment, however they must have high quality material to deliver. Our clients are requiring a product that rivals what they see coming from business and other commercial markets. As colleges and universities in the future will no longer control all access to knowledge, we will find ourselves competing for students with other entities such as the

telecommunications and entertainment industries. Education, therefore must embrace this new paradigm or be left behind.

References

Brittner, W. &. M., H. (1933). University teaching by mail. New York: The Macmillan Company.

Duning, B. S., Van Kekerix, M.J. & Zaborowski, L.M. (1993). Reaching learners through telecommunications. San Francisco, CA: Jossey-Bass.

Garrison, D. R. &. Shale, D. (1990). Education at a Distance: From Issues to Practice. Malabar, Florida: Robert E. Krieger Publishing Company.

Klein, D. (1985). Some notes on the dynamics of resistance to change: The defender role. In W. G. Bennis Benne, K.D. & Chin, R. (Ed.), The planning of change (pp. 98-105). New York: Holt, Rinehart & Winston.

Perry, W. (1986). The evolution of distance education. In Distance Education Conference, . Vancouver, B.C.:

Staff (1991). Trans-Texas videoconference network: The first year No. The Texas A&M University System.

Williams, M. (1994). Faculty Development in Distance Education: A Baseline Study. Ph.D., Texas A&M University.

Borg, W. R. &. G., M.D. (1983). Evaluation research. In Educational research: An introduction (pp. 732-766). New York: Longman.

Brittner, W. &. M., H. (1933). University teaching by mail. New York: The Macmillan Company.

Duning, B. S., Van Kekerix, M.J. & Zaborowski, L.M. (1993). Reaching learners through telecommunications. San Francisco, CA: Jossey-Bass.

Garrison, D. R. &. S., D. (1990). Education at a Distance: From Issues to Practice. Malabar, Florida: Robert E. Krieger Publishing Company.

Perry, W. (1986). The evolution of distance education. In Distance Education Conference, . Vancouver, B.C.:

Staff (1991). Trans-Texas videoconference network: The first year No. The Texas A&M University System.

Williams, M. (1994). Faculty Development in Distance Education: A Baseline Study. Ph.D., Texas A&M University.

Team-Teaching in Graduate Level HRD: Participant's Attitudes and Perceptions

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This study investigated team teaching a graduate HRD course and whether team teaching supports andragogy and faculty collaboration and socialization. Qualitative and quantitative data were collected from participants in a graduate HRD course. Findings suggest that team teaching supports andragogy, faculty collaboration, and socialization.

Team-teaching involves two or more instructors collaborating over the design and/or implementation and evaluation of the same course or courses (Easterby-Smith and Olve, 1984). Research related to team-teaching in higher education has generally been limited to undergraduate survey courses such as psychology and management education courses (Easterby-Smith and Olve, 1984). However, extensive research literature on the systematic evaluation and assessment of the "...outcomes of faculty collaboration in teaching does not exist " (Austin & Baldwin, 1991, p.41).

The formal knowledge base of learning and instruction in human resource development (HRD) in the twentieth century in the United States is built, in part, upon the humanistic learning construct of andragogy (Knowles, 1980, 1984). One of the tenets of andragogy is that adults are "life-centered" in their orientation to learning, and self-directed in their need to learn (Knowles, 1984; Long, 1991). Therefore, effective instructors in HRD programs in higher education should seek a style of instruction that reflects an "andragogical" model of instruction, facilitation, and self-directed learning (Brookfield, 1986; Knowles, 1984; Peters and Jarvis, 1991).

Teachers of adults have two primary roles: content specialists and/or facilitators of learning (Caffarella, 1988; Knowles, 1975, 1980). Peters and Jarvis (1991) point out that the lack of attention in adult learning literature to strategies which address the discrepancy between the teacher's conception of his or her role and the expectations of learners. It might be expected that collaborative relationships between teachers and learners in a team-teaching situation would be influenced by the teachers' view of his/her role and the expectations and attitudes of learners.

Faculty collaboration and socialization contribute to learning, collegiality, and teaching effectiveness (Austin, 1990; Austin & Baldwin, 1991; Mezirow, 1991). The role of socialization in assimilating newcomers into a new organization or occupation is widely accepted; what is needed is inquiry that addresses the collaborative process that occurs during socialization.

A study of an HRD course utilizing a team-teaching approach to instruction can shed light on the extent to which this instructional methodology supports faculty collaboration and socialization and how it supports an andragogical model of instruction. Research is needed on participants's attitudes and perceptions of team-teaching in a graduate HRD course in order to analyze faculty collaboration and socialization, and whether and how team-teaching supports andragogy.

Theoretical Perspective

The theoretical framework for this study was based on humanistic learning theories of andragogy and the work of Knowles (1980, 1984), and the self-directed learning studies of Knowles (1975, 1980), and Long (1991). According to Peters and Jarvis (1991), the relationship between teachers and adult learners has political, philosophical, and psychological dimensions. They contend that the political dimension of power, both in a structural and procedural sense, should be distributed

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between teacher and learner and among learners. It follows that this distribution will be even more complex if the power is shared between two or more teachers. In addition, the philosophical issues would be expected to be more complex with two teachers, especially if their philosophical viewpoints differ. The psychological dimension, as described by Knowles (1984), refers to the attitudes and actions which created what he described as an appropriate psychological climate for learning, i.e. one that is characterized by mutual respect, collaboration, mutual trust, supportiveness, openness, authenticity, and humanness. Again, the establishment of such a climate seems to become more complex with the addition of more than one teacher.

Andragogy has been variously interpreted as a "humanistic theoretical framework applied primarily to adult education (Elias and Merriam, 1980, p. 131), and a concept from which a set of adult teaching behaviors can be derived (Brookfield, 1986). Brockett and Hiemstra (1991) suggested an instructional model that relies on a facilitating resource or "educational agent" (p.13) working with learners who assume responsibility for their own learning in a supportive social environment. The social and methodological context in which the learning takes place is critical in establishing a theoretical construct for andragogy. The problem is to operationalize and then describe the interaction between the learner and the context. This study used qualitative analysis of participant interaction to achieve these goals.

The social context in which collaborative relationships were negotiated in this study is a critical dimension of the process of team-teaching. The theory of negotiated order characterizes collaboration as the result of self-conscious interaction of negotiation and re-negotiation among participants (Gray, 1989; Goffman, 1983). Negotiated order is based on social interaction between participants who are negotiating and re-negotiating their relationships.

The influence of collaborative relationships, gender, and status on HRD instruction have received minimal research attention. The work of Easterby-Smith and Olve, (1984) indicated that faculty collaboration influences higher education instructional results. Gender issues in this study were based, in part, on the work of Cameron and Blackburn, (1981), and status issues were based on research by Fennel and Sandefur, (1983).

Feldman, (1976) and VanMaanen, (1975) have been credited with organizing much of the theoretical groundwork in organizational and occupational socialization. Their research lays the theoretical foundation for the socialization-related constructs in this study.

Purpose of the Study

The purpose of the study was to answer several questions related to participant's perceptions and attitudes toward a team-teaching methodology in a graduate HRD course. The study focused on the following research questions: (a) is experience and personality compatibility of instructors an issue in a course utilizing team-teaching methods ? (b) what are concerns and special issues in team-teaching a graduate level HRD course ? (c) does team-teaching a graduate HRD course support the concept of andragogy ? (d) how does team-teaching affect faculty planning, implementation, and evaluation strategies ? (e) does team-teaching contribute to faculty collaboration and socialization of new faculty ? and (f) how do faculty gender and subordination issues affect team-teaching an HRD graduate course ?

Several methodological questions were queried to support the research questions and purpose of the study. They included (a) what are learners [and faculty] opinions about team-teaching versus more traditional methods of instruction in an HRD graduate course ? (b) how do learners in an HRD graduate course define team-teaching, and what skills, knowledge and attitudes do they believe teamed instructors need to be successful ? (c) what are advantages and disadvantages of team-teaching versus traditional teaching methods ? and (d) are there significant differences in learners' perceptions of andragogy in team-teaching and their attitudes toward team-teaching in an HRD graduate course as measured by a survey instrument ?

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Research Methods

Study Participants. Participant learners were 16 graduate students enrolled in Special Topics in Human Resource Development, a graduate course in the Department of Vocational and Adult Education (VAED), the University of Arkansas. The decision to use this sample is consistent with Patton's (1990) theoretical and criteria-based sampling techniques. This satisfied theoretical sampling (andragogy, collaboration, and socialization) and criteria sampling (higher education HRD students in a team-teaching situation) necessary for the successful completion of the study. The two instructors were a new faculty member and the department head. Both faculty instructors were participant observers and the non-participant observer was a graduate assistant from the same department.

Research Design. The multiple case study (learners and faculty), descriptive research design used mixed methods and methods triangulation. Multiple case study techniques included structured and unstructured in-depth interviews and observations by participant and a non-participant observer as well as the collection of relevant documents. In addition to qualitative techniques, a survey instrument was used to collect quantitative data.

Sixteen standardized open-ended interviews were scheduled at the University of Arkansas graduate education facilities. Interviewers were both faculty participant-observers and non-participant observer to assure trustworthiness of data. Each one hour interview was audio-tape recorded for data collection and analysis purposes.

Observations were performed by both instructors during each class period. Additional observations were done by a graduate student in order to balance possible observer bias on the part of the instructors. Post-observation debriefing sessions were held after each observation.

All course participants were asked to complete a survey instrument, a 47 item, modified version of the *Principles of Adult Learning Scale* (PALS) instrument, devised by Conti (1978), measuring the extent that instructors adhere to an andragogical model of instruction. Validity and reliability were established for the PALS instrument by Conti (1978, 1979, 1983). Participants were asked to provide demographic data such as age, gender, coursework status, university classification, and information concerning their extent of involvement in higher education.

Prolonged engagement (approximately four months), persistent engagement (methodological, observer, and data triangulation), member checks (post-class debriefing sessions), and peer debriefing (multiple researcher debriefing sessions) were used to ensure data trustworthiness as suggested by Lincoln & Guba (1985). Data triangulation was achieved through comparing and cross-checking the consistency of data obtained.

Procedures and Data Analysis. The qualitative portion of the study required that interviews be analyzed both *in situ* as suggested by Lofland and Lofland (1984), and during post-interview and post-class debriefings (Spradley, 1980, Strauss & Corbin, 1990). Additionally, participant-observers discussed and analyzed interview responses in on-going dialogues held throughout the research to qualify and attempt to support theory. Data was triangulated during each debriefing session and upon completion of the quantitative analysis. Qualitative software was used to support qualitative data analysis. Descriptive statistics were used to analyze quantitative data from the survey instrument.

Findings

The NUDIST (Replee Pty Ltd., 1993) software program was used to code and examine interview, debriefing, non-participant observation, and participant documentation. Survey data including demographic variables were analyzed by a quantitative data analysis software program. Quantitative data analysis was used [primarily] to enable confirmation and corroboration of qualitative data (Miles & Huberman, 1994). The following is an analysis of data collected from learners, faculty, and non-participant observer participants.

Learner Perceptions. Learner perceptions were classified according to the study's research and methodological questions. All references to respondent quotes in this study are coded

for anonymity. Learners' perceptions of team-teaching were generally positive. Learners reported that they were "interested" in different instructional methods, "comfortable" with the concept of team-teaching, and felt that it was "appropriate" for graduate level work" (sk-12).

Conversely, several learners were initially "apprehensive", and "a bit wary and skeptical" about the change from traditional methods to team-teaching. Change appeared to be the primary cause of learner anxiety, i.e. they were initially "disappointed, because it was something new - I [they] couldn't go into my [their] past and bring up a positive experience" (lj-102). Some learners were concerned about having to "please" more than one instructor, and wanted to know "who do I [we] answer to, who am I [are we] responsible to". They also had considerable misgivings about how they would be evaluated by two different instructors.

Participants defined team-teaching as more than one instructor responsible for the instruction of the course "to the effect that they both need to be present in some form" (js-63). Several learners emphasized the need for excellent communication, interpersonal, and organizational skills - more than those required in individual teacher-led instruction. Other skills included "compromise", flexibility", and "controlling personalities so they can be equal but not dominate" (ls-70).

Advantages of the team-teaching method included its ability to provide instructors the opportunity to "model team behaviors", and that it seemed to provide a more "informal" and "synergistic" approach to instruction. Most student participants felt that team-teaching provided more feedback from instructor(s) to all participants. Not surprisingly, participants thought that team-teaching allowed for a broader "collection of backgrounds, knowledge, and wisdom" concerning the course content.

Disadvantages to team-teaching included (a) a lack of cohesion "if one of the instructors came across as having more authority than the other" (cl-55), (b) problems if instructors displayed "philosophical" differences, and (c) the issue of "who do I please ?' when there are two instructors. Several participants believed that when instructor's personalities are compatible "it's just going to make things run smoother" (sk-100). Some were resolute concerning personality compatibility and felt that "there must be compatibility" (sk-105).

When asked about instructor's past experiences most learner participants felt that it was beneficial for instructors to bring diverse work experiences to the classroom. Participant-learner responses to problems and issues around team-teaching a graduate level HRD course can be categorized as (a) administrative and (b) topical. Administrative issues included monetary concerns around "justifying the credit hour production" (js-90) and that "team-teaching is not efficient, time wise" (dw-42). Definitions of HRD, assurances that "content reflects current practices" (ce-68), and "it supports the philosophy of HRD" (sk-81) were consistent topical issues identified.

Many learner respondents felt that team-teaching a graduate level course was less problematic than undergraduate instruction since graduate students "don't want to be spoon fed" (cl-64). However, a few learners believed that team-teaching may pose problems for graduate students: "it may be that they don't feel like they're getting the authority they had expected" (sk-118).

Responses such as "it gives the learner more responsibility for learning" (bp-236), and "it definitely allows for self-directed learning - for inquiring" (sk-344), indicated that learner's initial reactions to questions whether team-teaching supported andragogy were affirmative. However, as they began to reflect on this question several learners added that "it depends" on how the learning environment is "structured" and the "philosophy, goals, and objectives of the instructors-especially their philosophies" (js-274), and several participants felt that one strong facilitator of andragogy may influence a more pedagogical instructor.

Differences in learners' perceptions of andragogy in team-teaching and their attitudes toward team-teaching in an HRD graduate course were measured using a questionnaire. All participant learners (N=16) completed the questionnaire for a 100% response rate. The following are key findings of the quantitative data analysis. Numbers in parentheses for the first three items that follow are means from a rating scale of *0=never, 1=almost never, 2=seldom, 3=often, 4=almost always, and 5=always*. Respondents reported that: (a) the learning environment was conducive to learning (4.750), (b) a variety of teaching styles were used (4.125), and (c) dialogue was encouraged in the classroom (4.625). Numbers in parentheses for following items (d) - (i) are means from a rating scale of *0=strongly disagree, 1=slightly disagree, 2=disagree, 3=slightly agree, 4=agree, and*

5=strongly agree. Respondents indicated that: (d) instructors were more facilitators than teachers (3.938), (e) more team taught classes should be offered (3.875), (f) team-teaching is good for HRD (3.75), (g) the course was an outstanding learning experience (3.875), (h) course content helped to support the team-teaching method (3.688), and (i) team-teaching helped to socialize participants more than traditional courses (3.733).

A majority (56%) of respondents had little or no experience as participants in a team taught class. Of the 9 indicating that they had experience in a team taught class most (76%) felt that the overall quality of those classes was above average and that team-teaching made the course better than traditional teaching. Many (37.5%) indicated that they had experienced guest speakers in most of their graduate classes, while half reported experiences with guest speakers in over 10 graduate-level classes. Four (25%) participants responded that they had specific prior experiences with team-teaching such as team teaching integrated courses and having taken graduate and undergraduate team-taught courses. They generally felt that the teaching methods used by team-teachers whom they had experienced did not reflect a "real" team-teaching methodology where each instructor had equal responsibility in the classroom. They felt that team-teaching was beneficial to adult learners and that it not only provided the opportunity for learners to be more self-directed, it "modeled the techniques of team-building used in many business and industrial organizations" (bp-21).

Participants were asked to provide demographic data on the survey questionnaire. Over half (68.75%) of respondents reported being in the 36-55 age group. Most (75%) were female and doctoral students (81.25%). Many (43.75%) had almost completed coursework, while 31.25% were just starting their coursework. Over half (56.25%) of respondents take 2 courses (mean of 2.625) per semester; Half (50%) reported that they attended class 6 hours per week while 5 (31.25%) reported that they spend 10 or more hours per week in class. Over half (56.25%) of participant learners worked in full-time jobs (40 hours per week); A quarter (25%) work 30 hours per week, 12.5% work between 20-25 hours per week, and only one (6.25%) participant reported not working. Average hours of work per week was 32.81 hours.

Average commuting distances (miles/round trip) to attend classes was 63.2 miles with 8 adult learners (50%) commuting over 50 miles and 25% of respondents commuting over 100 miles. Over half (56.25%) of participants were full-time students (9 or more hours per semester). Three-quarters (n=12) identified themselves as "non-traditional students".

To address whether there were significant differences in questionnaire responses based on demographic variables analyses of variance (ANOVA) were computed. Note that sample size limits validity of results. Significant ($p < .05$) results of ANOVAs and subsequent *post hoc* (Sheffes) results indicated that (a) prior to this HRD graduate level course respondents attending 6 or fewer hours of class per week felt that team-teaching would enhance their learning ($F = 4.3226$, $p = .0465$); (b) participants attending classes over 6 hours per week reported that more team taught courses should be offered ($F = 5.3730$, $p = .0361$), (c) those students finishing their graduate coursework felt that learning episodes were planned to take into account their prior experiences ($F = 8.9128$, $p = .0139$); (d) respondents who commute less than 50 miles round trip to attend class reported that issues that related to their concepts of self were avoided in the class ($F = 4.2563$, $p = .0412$); (e) adult learners working less than full-time (40 hours per week) indicated that their likes and dislikes for the team-taught course balanced one another ($F = 5.1290$, $p = .0399$); and (f) female respondents reported that questions concerning the nature of society were encouraged in the team taught class ($F = 5.1345$, $p = .0398$).

Faculty Perceptions and Observations. Faculty participants' perceptions and observations were documented by audio-tape during post-class debriefing sessions. Initial perceptions of team-teaching by faculty were similar to learners; for example, early in the semester an instructor indicated that "I felt somewhat unsure as to how the process would work in regard to 'control', however, since I trusted the team-teaching partner, I felt that we could share control without stepping on one another's egos" (pb-5). The new faculty member reported some anxiety and both instructors agreed that learners "seemed to be picking up the course content faster than other HRD classes" (pa-59).

In-process debriefing analyses revealed that faculty were conscience of the possible bias inherent in participant-observer research; for example, one instructor said, "Are we modeling for

the sake of research or are we modeling good team-teaching practices cause it works ?" (pa-21,22). Both faculty members indicated that the team-teaching process required them to plan and make team decisions which were "sounder in that they are made with more reflection than I [we] normally would have given them" (pb-32). Although principles were discussed and in many cases implied, neither instructor reported conclusive statements as to whether or not team teaching supported andragogy. During the debriefing sessions issues around planning, implementation, and evaluation were in evidence by statements such as "these sessions help me be sure that my observations and conclusions about what is happening during class don't differ greatly from yours [team-teaching partner]. We can discuss possible problems without feeling that either is placing blame on the other" (pb-62).

Analyses of debriefing data indicated that team-teaching contributed to faculty collaboration and socialization of new faculty. For example, "it became easier and easier to work in a team-teaching situation as the semester went along. In fact, I came to look forward to checking with you [the partner] rather than making arbitrary decisions" (pb-29). New faculty socialization was enhanced through the learner-facilitator relationship and supervisor mentoring affiliation which plays a significant role in professional career development (Ostroff & Kozlowski, 1993).

Issues concerning faculty gender and subordination were ambiguous. Gender was not consciously discussed during the debriefing sessions and subordination was perceived by instructors as "insignificant". Analysis of data indicated that team-teaching faculty "didn't allow rank or gender to be an issue" (pb-55).

Non-Participant Observer Perceptions. Observation data analysis from observations approximately one-third and two-thirds through the semester indicated that learners and faculty interacted in a positive and "facilitative" manner with lots of "nods, smiles, eye contact, and 'uh-hus' interjected in the class" (npo-32). Learners became more "self-directed" as the class progressed; for example, prior to a class observation "about 20 minutes before the start of class I noticed that the chairs were arranged in a traditional classroom manner - in rows. When I came back at the beginning of class everyone was changing the seats into a circle and talking and carrying on in their groups - with no professors in the room" (npo-66,67). Observations indicated that participants generally treated each facilitator as equal during interaction.

Discussion and Research Implications

Discussion. Results are deductive and sought to discover and support elements of andragogy, and faculty collaboration and socialization in team teaching. Therefore, results should be applied only to the context of the study and may not transfer to different contexts (Lincoln & Guba, 1985). Triangulation of data and subsequent decisions on convergence "enhance the quality and credibility of findings" (Patton, 1990, p.467). The research design and sample size employed in this study prevent generalizability of quantitative analysis results. To address possible bias this study used detailed field notes, "reflections on their [our] own subjectivity", and worked in a team as additional checks on bias as recommended by Bogdan and Biklen (1982, p.42).

This study explored team teaching in a graduate level human resource development course and identified attitudes and perceptions of participants in the team-teaching process. As researchers, the faculty participant-observers were aware of possible learner response bias based on power inequality. This discrepancy was confronted through non-participant observation and utilization of a survey instrument. Qualitative and quantitative analyses provided several insights into team-teaching and its impact on faculty collaboration and socialization. These insights tended to converge on four major themes: (a) perceptions and attitudes, (b) organizational and course content (topical) issues, (c) andragogy and team teaching, and (d) faculty collaboration and socialization. This section describes these themes and their relation.

Perceptions and Attitudes. This study suggests that participants' perceptions and attitudes toward team teaching in graduate level HRD are unstable at best; that is, initial perceptions and attitudes were noticeably affected by organizational issues such as evaluation, and instructor control, authority, and accessibility. Instructor's "philosophy", personalities, and flexibility

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appeared to have had some affect on participant's attitudes and subsequent acceptance of team teaching as did the extent of application of andragogical principles.

Key results of quantitative analyses indicated that those learners with considerable exposure to higher education had positive attitudes toward team teaching and felt that their experiences were used to plan learning episodes. This attitude may be partially attributed to the andragogical concept of readiness and orientation to learning (Knowles,1980, 1984) in which exposure to effective learning models prepares adults for further learning. Female learners felt that a focus on societal issues was encouraged which supports the notion that "women hold a distinctly different worldview from men" (Cox, 1994, p. 106). The recent proliferation and ubiquity of teamwork and team-building activities in business and industry may have influenced participants' attitudes toward team teaching. A considerable number of participants worked full-time, thus many participants may have been exposed to teamwork and team-building activities. Instructor collaboration, especially during post-class de-briefing dialogues provided insights to class and individual learner's intellectual growth, comprehension problems, participation, and team-building. Faculty regarded the team teaching exercise as a positive influence on learners' capability to synthesize and apply course content. This affect on performance agrees with prior investigations reporting that team teaching "improves the professional lives of teachers and leads to the improvement of student performance" (Erb and Doda, 1989, p. 26).

Organizational and Topical Issues. Organizational issues included planning, evaluation, and communication. Topical issues were concerned primarily with course content. The operational structure of the team teaching effort in this study served to enhance performance. The social and political framework within which the team worked prescribed a consensus between members.

Course preparation time was increased compared to prior planning experiences; i.e., time was spent early in course revision and planning to take advantage of each instructor's individual strengths and expertise. Formative (in-process) development through weekly faculty meetings and debriefing sessions required time to discuss and reach agreement on revisions of delivery and content. Faculty agreed that although collaboration increased planning time, it generated better results in (a) instructional delivery and (b) (through formal and informal evaluations), learner synthesis of course content.

Addressing possible problems with team-teaching early in the course helped to alleviate some participant apprehension around evaluation. For example, the instructors solicited participant input on design of evaluations after several participants indicated that they anticipated problems with two instructors evaluating course deliverables. An instructor reported that "it was easier to stand by our decision with two persons than it would have been with one making the decision. I felt our position was strengthened by the fact that there were two of us" (pb-81-82).

Communication was expanded through requirements for faculty discussion, negotiation, and compromise. Divergent views and inquiry were encouraged through collaboration, thus establishing an environment conducive to dialogue. A great deal of dialogue is required for successful collaboration (Austin and Baldwin, 1991). An unambiguous structure and organization helped to shape and maintain a process of communication that supported interaction.

The content of the course in this study focused on analyzing organizational situations from more than one vantage point or "reframing" (Bolman and Deal, 1991). Case studies and problem-solving exercises promoted the use of learner teams in the class thus enhancing participant interaction and communication. Unlike foundations and survey courses designed to familiarize the student with a broad cross-section of a given subject, the course in this study was a special topics seminar that required analysis and synthesis. Additionally, HRD's "applied and interdisciplinary nature" (Chalofsky, 1992, p. 175) tended to reinforce interaction and teamwork in the classroom.

Andragogy and Team Teaching. Generally speaking, all participants thought that team-teaching supported andragogy only if the instructors were andragogical in their approach to instruction and the course was structured to support this methodology. One participant learner said, "I think team teaching increases the chances that it will be more andragogical" (bp-68). Faculty participants were more cautious in their universal endorsement of team teaching promoting andragogy. The new faculty member reported that "I know that if you [the other instructor] weren't andragogical too we'd have a harder time of it" (pa-36).

The quantitative analysis generally supported the andragogical model. Although no inferences or results can be drawn based on previous PALS research (see Conti, 1978, 1979, 1983), results revealed that faculty were more facilitators than instructors, the learning environment was conducive to interaction, teaching styles were varied, and dialogue was encouraged - all tenets of andragogy as developed by Knowles (1975, 1980, 1984).

Faculty Collaboration and Socialization. Faculty collaboration was enhanced through team-teaching. Instructional skills, cognitive development, collegiality, and dialogue were promoted by this collaboration. An additional benefit was to encourage reflective practice about teaching among faculty, an activity typically not a common component of university culture. Enhanced dialogue provided faculty with insightful criticisms and exposure to alternative teaching and personality styles necessary to reframe thinking and create an awareness of the processes of thoughts and feelings that create the learning experience. As participant-observers, faculty felt that dialogue as a validation or grounding of learning was critical in improving on-going facilitation and instruction, in formative evaluation, and in socialization. Improved collegiality as a component of socialization may serve to enhance the academic culture especially within the HRD program.

Socialization of new faculty may be reinforced by team-teaching and collaboration. Stage models of socialization indicate that during the first few months on the job, new employees seek to learn about the new setting by relying on interpersonal sources such as co-workers and mentors (Feldman, 1976; VanMaanen, 1975; Schein, 1988). This study supports the notion that team teaching greatly enhances and accelerates the socialization of new faculty not only by interpersonal sources but through the noninterpersonal source of observation of others "in salient situations" (Ostroff & Kozlowski, 1992, p. 851).

Team teaching, like collaborative instruction and research, fits within the culture of the academic profession and the discipline of human resource development. Teaching that encourages team learning and interactive modes of instruction promotes intellectual community and aids in the identity of HRD as a profession. Additionally, through occupational socialization, it promotes individual identification with the academic profession as well as the HRD discipline.

Individual philosophies around instructional methods and other principles of adult learning had an affect on faculty collaboration, socialization, and the success of team teaching in this study. This conclusion supports Peters and Jarvis' (1991) supposition that the relationship between teachers is more complex when philosophical viewpoints differ. Since philosophies include social and political dimensions, instructors with diverse social and political viewpoints should critically examine efforts to collaborate and team teach.

Gender and subordination issues had no overt influence on faculty collaboration and socialization; however, they did play a surreptitious role in facilitating collaboration. Status imposed an intrinsic authority and decision making arrangement (Fox and Faver, 1982) that served as a mediating force when problems over evaluation strategies proved difficult to solve. Although gender was an insignificant issue in this study, it has been reported that women and men approach collaborative teaching relationships differently (Austin & Baldwin, 1991). Even though these differences were not brought to light as a result of this study, the fact that a faculty member was subordinate and of different gender should not be ignored as possible ambiguous variables influencing faculty collaboration and socialization.

Research implications. Every effort was made to make this study valid and to enhance credibility through multiple research methods, however this research was not without limitations. Much of what was learned in this study was dependent on the interaction between investigator(s) and the context of the study (Lincoln and Guba, 1985, p. 208).

Because only one graduate level HRD class was studied, future research should be conducted that examines team teaching and faculty collaboration in a variety of adult learning environments including undergraduate and continuing education classes within private and public, and large and small institutions all need to be examined. The design of this study did not take into account empirical measures of effectiveness, thus comparisons of quantitative evaluations may advance research into the effect of team teaching on learner performance.

Future research is also needed to investigate socialization as a learning strategy for newcomer faculty. Moreover, measures of organizational impact are needed. The influence that team

teaching has on organizational climate and culture could serve to establish faculty collaboration as a mechanism for attracting, selecting, and socializing new members. More research is needed on collaboration of faculty of different gender as well as differences in status. Few researchers have examined the experiences with collaboration of academic women (Austin & Baldwin, 1991, p.74), especially women in high status positions. Finally, additional qualitative studies are needed concerning team teaching and faculty collaboration. A variety of methodologies such as naturalistic inquiry, educational ethnography, and case study should be pursued to provide research which "gets beyond initial conceptions" and provides human resource development research with a quality of "undeniability" (Miles and Huberman, 1994, p. 1) and truth.

Summary

Findings of this study suggest that (a) adult learners have a positive attitude toward team teaching of HRD at the graduate level (b) faculty collaboration and socialization are supported and enhanced by team teaching, and (c) team teaching generally supports andragogy. This research also uncovered several potential benefits of team teaching. First, as a socializing activity team teaching may positively influence newcomer socialization and thus affect the culture and climate of the organization. Second, the interactive nature of team teaching may be a potential source of intellectual stimulation and cognitive development for learners as well as faculty. Finally, team teaching reflects the longing for teamwork and team learning in organizations and may serve as a model of the potential of collective learning.

References

Austin, A.E. (1990). Faculty cultures, faculty values. In Tierney, W.G. (Ed.), Assessing academic climate and cultures. New Directions for Institutional Research, 18(4), 61-74.

Austin, A.E., & Baldwin, R.G. (1991). Faculty collaboration: Enhancing the quality of scholarship and teaching. (ASHE-ERIC Higher Education Report No. 7). Washington, DC: The George Washington University, School of Education and Human Development.

Bogdan, R., & Biklen, S.K. (1982). Qualitative research for education. Boston: Allyn and Bacon.

Bolman, L.G. & Deal, T.E. (1991). Reframing organizations: Artistry, choice, and leadership. San Francisco: Jossey-Bass.

Brockett, R.G. & Hiemstra, R. (1991). Self-direction in adult learning: Perspectives on theory, research, and practice. London and New York: Routledge & Kegan Paul.

Brookfield, S. D. (1986). Understanding and facilitating adult learning. San Francisco: Jossey-Bass.

Caffarella, R.S. (1988). Ethical dilemmas in the teaching of adults. In Brockett, R.G. (Ed.), Ethical issues in adult education. New York: Teachers College Press.

Cameron, S.W., & Blackburn, R.T. (1981). Sponsorship and academic career success. Journal of Higher Education, 52, 369-377.

Chalofsky, N. (1992). A unifying definition for the human resource development profession. Human Resource Development Quarterly, 3(2), 175-182.

Conti, G.J. (1978). Principles of adult learning scale: An instrument for measuring teacher behavior related to the collaborative teaching-learning mode. Unpublished doctoral dissertation, Northern Illinois University.

Conti, G.J. (1979). Principles of adult learning scale. Paper presented at the annual Adult Education Research Conference (20th, Ann Arbor, MI, April 4, 1979). Adult Education Research Conference. (ERIC Document Reproduction Service No.ED 179 713)

Conti, G.J. (1983). Principles of adult learning scale: Follow-up and factor analysis. Proceedings of the 24th annual adult education research conference, 63-68.

BEST COPY AVAILABLE

Cox, T.H. (1994). Cultural diversity in organizations: Theory, research and practice. San Francisco: Berrett-Koehler.

Easterby-Smith, M., & Olve, N.G. (1984). Team-teaching: Making management education more student-centered? Management Education and Development, 15, 221-236.

Elias, J.L., & Merriam, S. (1980). Philosophical foundations of adult education. Malabar, Fla: Robert Krieger Publishing.

Erb, T.O., & Doda, N.M. (1989). Team organization: Promise-practices and possibilities. Washington, DC: National Education Association.

Feldman, D.C. (1976). A contingency theory of socialization. Administrative Science Quarterly, 21, 433-452.

Fennel, M.L., & Sandefur, G.D. (1983). Structural clarity of interdisciplinary teams: A research note. Journal of Applied Behavioral Science, 19, 193-202.

Fox, M.F., & Faver, C.A. (1982). The process of collaboration in scholarly research. Scholarly Publishing, 13, 327-339.

Goffman, E. (1983). The interaction order. American Sociological Review, 48, 1-17.

Gray, B. (1989). Collaborating: Finding common ground for multiparty problems. San Francisco: Jossey Bass.

Jarvis, P. (1984). Andragogy: A sign of the times. Studies in the Education of Adults, 16, 32-38.

Knowles, M.S. (1975). Self-directed learning. New York: Association Press.

Knowles, M.S. (1980). The modern practice of adult education: From pedagogy to andragogy. (2nd ed.) New York: Cambridge Books.,

Knowles, M.S. (1984). The adult learner: A neglected species. (3rd. ed) Houston: Gulf Publishing.

Lincoln, Y.S. & Guba, E.G. (1985). Naturalistic inquiry. Beverly Hills, CA: Sage.

Lofland, J. & Lofland, L.H. (1984). Analyzing social settings: A guide to qualitative observation and analysis (2nd ed.). Belmont, CA: Wadsworth.

Long, H.B. (1991). Self-directed learning: Consensus and conflict. Norman, Oklahoma: Oklahoma Research Center for Continuing Professional and Higher Education of the University of Oklahoma.

Mezirow, J. (1991). Transformative dimensions of adult development. San Francisco: Jossey Bass.

Miles, M.B. & Huberman, A. M. (1994). Qualitative data analysis (2nd ed.). Thousand Oaks, CA: Sage.

Ostroff, C., & Kozlowski, S.W. (1992). Organizational socialization as a learning process: The role of information acquisition. Personnel Psychology, 45, 849-874.

Ostroff, C., & Kozlowski, S.W. (1993). The role of mentoring in the information gathering processes of newcomers during early organizational socialization. Journal of Vocational Behavior, 42, 170-183.

Patton, M.Q. (1990). Qualitative evaluation and research methods (2nd ed.). Newbury Park, CA: Sage Publications.

Peters, J.M., & Jarvis, P. (1991). Adult education: Evolution and achievements in a developing field of study. San Francisco: Jossey Bass.

Replee Pty Ltd. (1993). NUDIST software program. Research & Development Park Centre. Bundoora Campus, Melbourne 30383, Australia.

Schein, E.H. (1988). Organizational socialization and the profession of management. Sloan Management Review, 30, 53-65.

Spradley, J. (1980). Participant observation. New York: Holt, Rinehart & Winston.

Strauss, A. L. & Corbin, J. (1990). Basics of qualitative research: Grounded theory procedures and techniques. Newbury Park, CA: Sage.

VanMaanen, J. (1975). Breaking in: Socialization to work. In Dubin, R. (Ed.), Handbook of work,organization and society (pp. 32-103). New York: Rand McNally.